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*Rara Arithmetica.* By DAVID EUGENE SMITH. Boston: Ginn & Co., 1908.  
Pp. xiii+506. Edition in one volume, \$5.50.

The subtitle states that this book is a catalogue of the arithmetics written before the year 1601 with a description of those in the library of George A. Plimpton of New York. This collection of early arithmetics, more than three hundred in number, is the largest that has been brought together; and there are few important arithmetics published before the year 1601 that are not found in it.

The list of the writers of these early printed books contains some familiar names. Among others there are Boethius, Cassiodorus, Archimedes, Euclid, Nicomachus, the Venerable Bede, Tartaglia, Cardan, and Melanchthon. The profuse reproduction of the quaint title-pages and illustrations of these old books together with a brief statement of their contents gives one a feeling of acquaintance with old arithmetics. There are more than two hundred and fifty facsimiles of pages showing the first printed mention of a slate, the first traces of modern long division in manuscript and print, the first use of the decimal point and the first scientific treatment of decimals, various forms of multiplication and division, and many other interesting details of the development of arithmetic. Herein lies the great value of the present volume. The ordinary history of mathematics gives the facts of the development of arithmetic, but here one can see the real work of the early mathematicians, and trace in their own handiwork the introduction of symbols and the growth of methods and processes.

The publishers are to be commended for the mechanical excellence of the book. The paper, typography, and binding make it a very attractive volume.

*Elements of Business Arithmetic.* By A. H. BIGELOW AND W. A. ARNOLD.  
New York: Macmillan, 1911. Pp. x+258. \$0.70.

It is the purpose of this book to present the fundamental operations of modern business, and give a thorough drill in the computations of present-day commercial practice. The subject-matter and form of presentation have been tested for nearly ten years in manuscript form by the authors. As they believe that arithmetic should be kept entirely apart from algebra and geometry, teachers who wish to teach pure arithmetic with no problems and exercises in sketching, drawing, construction, measuring, and so on, will be interested in this book.

The omission of obsolete topics, the simple and easily understood treatment of those topics directly applicable to the problems of the present day, the large number of problems relating to things within the life experience of the pupils, the problems of easy solution for mental arithmetic, and the detailed information in regard to business practice would seem to assure good training in the field to which the authors have limited their work.

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*A Laboratory Manual of Physical Geography.* By R. S. TARR AND O. D. VON ENGELN. New York: Macmillan, 1910. Pp. xvii+362. \$1.25.

This manual is undoubtedly the most comprehensive that has yet appeared. The authors have aimed to make it practical and usable with a minimum equip-

ment, and at the same time compel training in observation and deduction. The human element is constantly interwoven in the exercises and the student is led to see the effect of natural forces on man's activities. This practical application is the key to interest in laboratory work. Space is left after each question for the student's answer, thus assuring consecutive observation and reasoning. The marginal subheads, emphasizing the immediate steps in the exercise, should prove important additional factors in developing a systematic habit of work.

The exercises have been arranged under eight leading heads. These are: the earth as a whole; autumn field work; minerals, rocks, and soils; making and interpretation of topographic maps; physiography of the land; spring fieldwork; the ocean; the atmosphere. Among the exercises under the first head which deserve special notice are those designed to acquaint the student with various map projections and the relative value of each. The field-work suggestions are of necessity very general, but will be welcomed by the teacher who desires a good working method. In the making and interpretation of topographic maps a most ingenious wet-laboratory scheme has been perfected. It reduces the making of a contour map to its simplest terms. A miniature land-form is constructed on a platform which is adjustable to any depth of water. The shore-line can thus be raised or lowered at will and any desired contours represented and successively drawn to any selected scale. The important principles of the contour map may thus be made clear and a true related mental picture of the map and object secured. This equipment should be very inexpensive compared with other laboratory devices. Cross-section paper and all necessary blank maps accompany each exercise just where needed, yet the loose-leaf construction of the manual allows any desired change.

The manual represents the results of many years of laboratory teaching of physical geography to students at Cornell University. It is intended by the authors for use in "high and secondary schools and colleges." Since there is such a large difference between first-year high-school and college students it is needless to say that the book has a rather difficult mission to fulfil. It seems best adapted to the grade of students with whom it was developed, but out of the seventy-three exercises the high-school teacher may make valuable and perhaps sufficient selections.

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*Domesticated Animals and Plants: A Brief Treatise upon the Origin and Development of Domesticated Races with Special Reference to the Methods of Improvement.* By E. DAVENPORT. Boston: Ginn & Co., 1910. Pp. xiv+321. \$1.25.

This volume has been prepared for the use of students pursuing courses in agriculture in high and normal schools. It is less technical than the same author's *Principles of Breeding*, but considers more fully domesticated animals and plants. The author believes that the facts of reproduction and heredity presented will be of particular value to secondary-school students. This book